

# 2021 State of Missouri Flood Damage Assessment Packet



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## Includes Information On:

Steps to Take Following a Flood  
Substantial Damage “The 50% Rule”  
FEMA Substantial Damage Estimator (SDE 3.0)  
Damage Assessment Field Worksheets  
Sample Notice  
Sample Press Release  
Sample Damage Determination Letters  
Sample Right of Entry Forms  
Sample Handouts for Residents  
Information on Mitigation Programs  
Information on Increased Cost of Compliance  
Home Moving and Elevation Contractors



# FOLLOWING A FLOOD

All local floodplain management ordinances in the State of Missouri require permits for the repair or reconstruction of flood damaged structures. The local floodplain administrator must ensure that the repair of a damaged structure within the community's Special Flood Hazard Area (SFHA) meets the requirements of the community's floodplain management ordinance.

Following a flood event, the local administrator should follow these five steps:

**Step 1: Contact the Floodplain Section of the State Emergency Management Agency (SEMA) or the Federal Emergency Management Agency (FEMA).** Both agencies have experience, materials, and guidance to assist in carrying out all floodplain management responsibilities. SEMA: (573) 526-9129 or FEMA: (816) 283-7063

**Step 2: Identify those structures believed to be substantially damaged and begin doing damage assessments.** Local officials should tour the flooded areas in the 1% chance floodplain and identify every structure which has been flooded, as well as those with obvious structural damage.

- Damaged buildings should be marked on a community map and photographed for future reference.
- Tag each structure with the notice included in this packet so residents are aware of the post-flood permit requirements. A sample press release is also included with this packet.

Damage assessments can be difficult. Local officials should inspect every flood-damaged building and calculate the cost of repairs. The FEMA Substantial Damage Estimator 3.0 software is available to help make these determinations. The pre-flood market value of every flooded structure can quickly be estimated from the County Assessor's records.

**Step 3: Post information for the public about the local ordinance requirements for obtaining permits for repairs and rebuilding.** Often repairs begin on flooded buildings before the water recedes from the structure. Therefore, it is very important that this step take place as soon as possible. History shows that information spreads quickly among flood victims. Posted signs, flyers, notices on damaged structures, press releases, and letters mailed to individual owners can all be used to augment this purpose. Become educated regarding the damage assessment process, reconstruction methods, and available mitigation programs. Have a "Floodplain Development Permit Application" in hand and ready to distribute. Keep it simple. Be prepared for residents who are angry that they cannot start immediate repairs.

**Step 4: Provide technical information to residents on elevation and floodproofing techniques.** Post-flood activities present the perfect window of opportunity to ensure that flood damages do not occur again. Federal or state mitigation programs are often available. The mitigation program experts at the Missouri State Emergency Management Agency can be contacted at: (573) 526-9116. Technical manuals and guidance are available. Public meetings can be presented in flooded communities to introduce flood victims to the various options available to them.

**Step 5: Implement a permit application procedure.** At this point the community should be on its way to enforcing the floodplain ordinance. Those structures identified as substantially damaged (cost to repair back to a pre-damaged condition is 50% or more of the pre-flood market value) should be "red-tagged". Permits should not be issued until compliance with the local floodplain ordinance is demonstrated. Those with less than 50% damage can be issued permits to repair.

## **SUBSTANTIAL DAMAGE**

### **“THE 50% RULE”**

Communities participating in the National Flood Insurance Program (NFIP) have adopted, and are expected to enforce, a floodplain management ordinance. New structures located in the 1% annual chance (100-year) floodplain must be elevated to or above the base flood elevation, depending upon the requirements of the community's floodplain management ordinance. The same flood protection and elevation regulations also apply to substantially damaged buildings.

**SUBSTANTIAL DAMAGE.** Whenever a building located in a mapped floodplain area - the Special Flood Hazard Area (SFHA) - is damaged from any source (flood, fire, seismic activity, wind, or human activity), the community must determine if that structure is substantially damaged. A building is substantially damaged when the cost of repairs is 50% or more of the structure's "pre-damaged" market value.

If the building is found to be substantially damaged, the structure must be brought into compliance with the community's floodplain ordinance, i.e. protected from future flooding to at least the base flood elevation, if it did not already meet this standard.

The cost of repairs must be calculated for full repair to "pre-damaged" condition, even if the owner elects to do less. The total cost of repair includes structural and finish materials as well as labor.

**CUMULATIVE COST.** If standards for CUMULATIVE IMPROVEMENT are adopted in a community's floodplain management ordinance, substantial damage occurs at the point where multiple damage or improvements total 50% or more of the pre-damage/pre-improvement market value of the building.

**BUILDING VALUE.** Building value is the market value of the structure only. Land and exterior improvements (pools, pool houses, landscaping, walkways, etc.) are excluded.

Following a disaster, most communities find that it expedites the process to obtain the structure's market value from the County Tax Assessor. This method of obtaining market value ensures consistency.

Other acceptable methods of estimating market value include:

- Independent appraisals by a Missouri professional appraiser.
- Detailed estimates of the structure's Actual Cash Value (replacement cost minus depreciation).
- Qualified estimates based on sound professional judgment made by the staff of the local building department.
- FEMA's Substantial Damage Estimator software

**DETERMINATION OF EVENT DAMAGE – COST OF REPAIR.** "Substantial Damage" refers to the repair of all damage sustained and CANNOT reflect a level of repairs that is LESS than the amount of the damage sustained. If the owner does not intend to repair the damaged building right away, or if the owner cannot afford to make all repairs immediately, the local official should inspect the property to determine whether, based on estimates, the work required to restore it to its pre-damaged condition constitutes Substantial Damage.

## **COSTS THAT MUST BE INCLUDED IN SUBSTANTIAL DAMAGE/SUBSTANTIAL IMPROVEMENT DETERMINATIONS:**

- Materials and labor, including the estimated value of donated or discounted materials and owner or volunteer labor.
- Site preparation related to the improvement or repair (e.g., foundation excavation or filling in basements).
- Demolition and construction debris disposal related to removing structure walls, floors, etc. This should NOT include cleanup or disposal of contents.
- Labor and other costs associated with demolition, moving or altering of the structure to accommodate improvement, additions and making repairs.
- Costs associated with maintaining compliance with other codes or regulations, including the Americans with Disabilities Act (ADA).
- Costs associated with elevating a structure when the proposed elevation is lower than the BFE
- Construction management and supervision
- Contractor's overhead and profit
- Sales tax on materials

### **Structure Elements and exterior finishes, including:**

- Foundations (e.g., spread or continuous foundation footings, perimeter walls, chain walls, pilings, columns, posts, etc.)
- Monolithic or other types of concrete slabs
- Bearing walls, tie beams, trusses
- Joists, beams, subflooring, framing, ceilings
- Interior non-bear walls
- Exterior finishes (e.g. brick, stucco, siding , painting, and trim)
- Windows and exterior doors
- Roofing, gutters and downspouts
- Hardware
- Attached decks and porches

### **Interior Finish Elements, including**

- Floor finishes (e.g., hardwood, ceramic, vinyl, linoleum, stone, and wall-to-wall carpet over subflooring)
- Bathroom tiling and fixtures
- Wall finishes (e.g., drywall, paint, stucco, plaster, paneling, and marble)
- Built-in cabinets (e.g., kitchen, utility, entertainment, storage, and bathroom)
- Interior doors
- Interior finish carpentry
- Built-in bookcases and furniture
- Hardware
- Insulation

### **Utility and service equipment, including**

- Heating, ventilation, and air conditioning (HVAC) equipment
- Plumbing fixtures and piping
- Electrical wiring, outlets, and switches
- Light fixtures and ceiling fans
- Security systems
- Built-in appliances
- Central vacuum systems
- Water filtration, conditioning, and recirculation systems

**Guidance from Substantial Improvement/Substantial Damage Desk Reference – FEMA P-758, May, 2010, P. 4-5, 4-6, 4-7**

### **COSTS THAT MAY BE EXCLUDED FROM SUBSTANTIAL DAMAGE/SUBSTANTIAL IMPROVEMENT DETERMINATIONS:**

- Clean-up and trash removal; (e.g., cost of draining a basement, removing dirt and mud, and cleaning and drying out buildings)
- Costs to temporarily stabilize a building so that it is safe to enter to evaluate and identify required repairs
- Costs to obtain or prepare plans and specifications
- Land survey costs
- Permit fees and inspection fees
- Carpeting and re-carpeting installed over finished flooring such as wood or tile
- Outside improvements, including landscaping, irrigation, sidewalks, driveways, fences, yard lights, swimming pools, pool enclosures, and detached accessory structures (e.g., garages, sheds, and gazebos)
- Costs required for the minimum necessary work to correct existing violations of health, safety, and sanitary codes
- Plug-in appliances such as washing machines, dryers, and stoves.

**Guidance from Substantial Improvement/Substantial Damage Desk Reference – FEMA P-758, May, 2010, P. 4-7**



**FEMA Substantial Damage  
Estimator (SDE 3.0)  
SDE Cheat Sheet  
Residential Field Worksheet  
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Long hand Field Worksheet**

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# **FEMA SUBSTANTIAL DAMAGE ESTIMATOR (SDE 3.0)**

## **THE FEMA SUBSTANTIAL DAMAGE ESTIMATOR (SDE 3.0)**

The SDE 3.0 tool was developed by FEMA to assist State & local officials in determining substantial damage for residential & non-residential structures in accordance with local floodplain management ordinances meeting the regulatory requirements of the National Flood Insurance Program (NFIP). This tool can be used to assess flood, wind, wildfire, seismic, and other forms of damage. The SDE tool is based on the concept of using damage estimates for individual structural elements to determine whether the structure as a whole is substantially damaged. It allows community officials with limited appraisal or construction backgrounds to develop reasonable estimates of a structure's values and damage in accordance with NFIP requirements.

Communities with multiple flooding issues should obtain the SDE 3.0 software and Field Workbook and learn to use the program. Using the software will save time and research. SDE 3.0 software can be downloaded directly from the FEMA website:

<https://www.fema.gov/emergency-managers/risk-management/building-science/substantial-damage-estimator-tool>

The Installation Package Zip-file contains all of the items needed to load SDE 3.0. This Zip-file contains the manuals listed on the website download page and will also be downloaded in that package. This includes the Installation Guide which will provide answers to installation questions that have not been included in this packet. IT personnel should be contacted when having trouble installing the SDE software.

Please note that in the past the State Floodplain Management section downloaded and distributed the user's manual and all associated forms to the community. The SDE program size increased substantially during the recent updates, therefore providing paper copies of the manuals is no longer an option.

If you have any further questions or concerns, please contact Linda Olsen 573-526-9115 or [linda.olsen@sema.dps.mo.gov](mailto:linda.olsen@sema.dps.mo.gov).



## INSTALLATION STEPS

Prior to installing the SDE 3.0 Tool, users are encouraged to export and save any existing SDE data from previous versions of the SDE tool. Although it is not required, FEMA recommends that users uninstall previous versions of the SDE tool from the host computer using the Windows Add/Remove Programs function to avoid confusion between past and current SDE inventories.

Installation steps may vary depending on the host computer setup and the utility program installed on the computer to unzip the SDE tool installation file downloaded from the FEMA website.

Use the following steps to install the SDE 3.0 Tool using a zip file downloaded from the FEMA website:

**USER NOTE:** A host computer can only have one installation of the SDE tool.

1. After opening the FEMA website (<http://www.fema.gov>), click on the Emergency Management tab, click on Building Science, then on the right hand side find Substantial Damage Estimator Tool or use the SDE web page found at <https://www.fema.gov/emergency-managers/risk-management/building-science/substantial-damage-estimator-tool> to locate the SDE tool download function.

2. Download the SDE installation zip file to the My Documents folder on the host computer and unzip the file. In many cases, users can unzip the folder by right-clicking on the file and selecting the option **Extract All ...** from the list of options or by double-clicking the zip folder and selecting the option **Extract all files** from the list of choices displayed. Some users may have an unzip utility installed that activates automatically when they select a zipped folder or file.

3. If the .NET Framework 4.6.1 is not already installed, the SDE installation routine will attempt to search online for the Framework and install it on the host computer during the SDE 3.0 installation. **Local administrative rights and an Internet connection are required to install the .Net Framework 4.6.1.** The user will need to accept the Framework license agreement (Figure 1) for the installation to continue.

4. After the SDE file has been extracted, open the folder and double click on the “Setup.exe” file to start the tool installation process. The Setup Wizard window shown in Figure 2 will appear.

5. Select **Next** button to continue the installation.

6. The Select Installation Folder window will appear next. This window allows the user to proceed with installation in the default location or change the destination folder. After the destination folder is identified, select **Next** to continue.

7. When the Confirm Installation window appears, the Setup Wizard is ready to proceed with the SDE installation on the host computer. Select **Next** to continue.

8. The installation status window will show the status of the installation process. When the status bar reaches 100%, select **Next** to continue.

9. Once the installation is complete, select Close to end the installation process.

10. Upon completion of the installation, an SDE icon will appear on the desktop of the host computer. Double-click the icon to run the SDE tool.



## **THE SDE “CHEAT SHEET”**

The SDE requires the inspector to estimate the percent of damage for various building components. The information compiled below can be used with the SDE worksheet to quickly calculate substantial damage. It is intended to be used as a screening tool so that the property owner is notified as soon as possible as to the potential status of his property. Often a more detailed assessment is warranted and more detailed damage percentages should be determined on an as-needed basis.

- **Foundation** – *These numbers can be revised downward if the inspector is reasonably assured no damages have occurred.*
  - **Basement or crawlspace masonry foundations-**
    - 10% if minor hairline cracks and fractures or cosmetic (clean up, re-seal, paint, etc.)
    - 50% if cracked, bowed, or fractured on one or more walls
    - 100% if structural damage such as blow out or caved in walls
  - **Slab on Grade Foundations** –
    - 10% damage unless the foundation is undermined.
    - 30% if foundation is undermined
    - 75% if foundation is broken or bowed
  - **Joist and Pier Foundations**
    - 15% damage – for water depths exceeding height of floor
    - 100% damage where building has moved from foundation

*This criteria is based on foundations that are substantially intact and do not include damages caused by subsidence or shifting of the foundation. In some cases hydrodynamic forces has caused an upheaval in slab on grade foundations. In this circumstance, individual assessment will be required.*

- **Superstructure**
  - **Walls**
    - 10% for water depths of 2 feet or less
    - 25% for water depths of 2 to 4 feet
    - 75% for water depths of more than 4 feet
  - **Structural damage resulting from wind or impact damage**
    - Lineal feet of damage divided by total lineal feet of wall will equal percentage
  - **Roof damage**
    - Total square feet of roof damage divided by square footage of house will equal percentage
  - **Insulation and Weather-stripping**
    - 30% if waters less than 4 feet
    - 60% if waters greater than 4 feet but less than ceiling height
    - 100% if water above ceiling height
  - **Exterior Finish**
    - 30% if waters less than 4 feet
    - 60% if waters greater than 4 feet but less than ceiling height
    - 100% if water above ceiling height

*These numbers are based on hydro dynamic forces acting on the exterior walls of the structure. Some brick or brick veneer structures may have actual damages less than those shown.*

- **Interior Finish** - based on interior finishes susceptible to flood damage
  - 30% if waters less than 4 feet
  - 60% if waters greater than 4 feet but less than ceiling height
  - 100% if water above ceiling height
- **Doors, Windows and Shutters**
  - 50% if waters greater than 2 inches
  - 75% if waters greater than 4 feet
  - \$ 70.00 per individual window when other damage occurs
- **Lumber Finished**
  - 50% if water greater than 1 inch
  - 100 % if waters exceeding 4 feet
- **Hardware**
  - 100% if waters exceeding 4 feet
- **Cabinets and Countertops**
  - 20% if waters less than 3 inches
  - 70% if waters greater than 3 inches less than 4 feet
  - 100% if water exceeding 4 feet
- **Floor Coverings**
  - 100% if waters greater than 1 inch
  - 20% for ceramic tile, brick, or concrete floors
- **Plumbing**
  - 5% if waters less than 2 feet
  - 30% if waters between 2' and 4 feet
  - 50% if waters greater than 4 feet if the fixtures are not reused

*Floodwater will rarely damage plumbing pipes so this schedule is based on the cost of plumbing fixtures and the labor to install them.*

- **Electrical**
  - 10% if waters greater than 2 feet and less than 4 feet
  - 50% if waters greater than 4 feet and less than ceiling
  - 100% if waters greater than ceiling height

*Some communities require the wiring to be replaced if they came in contact with flood waters. This schedule reflects replacement of fixtures and minimal wiring.*

- **Built in Appliances**
  - 100% if waters more than 3 feet

- **Heating and cooling**
  - 30% if waters less than 3 feet
  - 60% if waters greater than 3 feet but less than ceiling height
    - *If A/C unit is located in the attic this number will be reduced to 30%*
  - 100% if waters greater than ceiling height
- **Painting**
  - 20% if waters less than 4 inches
  - 50% if waters less than 4 feet
  - 100% if waters greater than 4 feet

*Reflects interior and exterior painting of the surfaces in contact with the water and areas where the surfaces are replaced due to damage. This category also includes finishing of doors and trim that may have been replaced.*



# Residential Field Worksheet

## RESIDENTIAL/MANUFACTURED HOMES SDE DAMAGE INSPECTION WORKSHEET

### **Building Address**

Owner First Name: \_\_\_\_\_ Owner Last Name: \_\_\_\_\_

Street Number: \_\_\_\_\_ Street Name: \_\_\_\_\_

City: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Mailing Address** **Check here if same as above:** \_\_\_\_\_ (IF KNOWN)

If different: Write mailing address here: \_\_\_\_\_  
Have Right of Entry form returned Yes No  
Initial here to give right to enter \_\_\_\_\_  
Date permission given to enter \_\_\_\_\_

### **Additional Structure Information: (BEFORE DAMAGE OCCURRED) CHECK ONE in Each Category**

Quality of Construction: (When first built) \_\_\_\_\_ Low \_\_\_\_\_ Average \_\_\_\_\_ Excellent

**Resident type:** \_\_\_\_\_ Single Family \_\_\_\_\_ Town or Row House \_\_\_\_\_ Manufactured House

**Foundation:** \_\_\_\_\_ Continuous Wall w/Slab (Standard) \_\_\_\_\_ Basement \_\_\_\_\_ Crawlspace \_\_\_\_\_

Piles \_\_\_\_\_ Slab-on-Grade \_\_\_\_\_ Piers and Posts

**Superstructure:** \_\_\_\_\_ Stud-Framed (Standard) \_\_\_\_\_ Common Brick \_\_\_\_\_ ICF \_\_\_\_\_ Masonry

**Roof Covering:** \_\_\_\_\_ Shingles – Asphalt (Standard) \_\_\_\_\_ Wood \_\_\_\_\_ Clay tile \_\_\_\_\_ Standing Seam (Metal)  
\_\_\_\_\_ Slate

**Exterior Finish:** \_\_\_\_\_ Siding or Stucco (Standard) \_\_\_\_\_ Brick Veneer \_\_\_\_\_ EIFS  
\_\_\_\_\_ Common brick, structural \_\_\_\_\_ None

**HVAC System:** \_\_\_\_\_ Heating and/or Cooling \_\_\_\_\_ NONE \_\_\_\_\_

**Story:** \_\_\_\_\_ One Story (Standard) \_\_\_\_\_ Two or More Stories

**Depth of Flood Above ground:** \_\_\_\_\_ (estimated to nearest foot) IF KNOWN

**Depth of Flood Above First Floor (estimated to nearest foot)** \_\_\_\_\_ IF KNOWN

**No Physical Damage (Check here if none).** \_\_\_\_\_

**Duration of Flood:** \_\_\_\_\_ Hours \_\_\_\_\_ Days

Date Damage Occurred (MM/DD/YYYY) \_\_\_\_\_

**CAUSE of DAMAGE** \_\_\_\_\_ Fire \_\_\_\_\_ Flood \_\_\_\_\_ Flood & Wind \_\_\_\_\_ Seismic \_\_\_\_\_ Wind

Has NFIP Insurance: \_\_\_\_\_ YES; \_\_\_\_\_ NO (IF KNOWN)

Has Photos: \_\_\_\_\_ Yes; \_\_\_\_\_ No How Many photos \_\_\_\_\_

Additional Structure Information: (NOTES) (Ex. Has brick fireplace. All wood floors)

**Depreciation Rating: (Wear & Tear) 1. Requires Extensive Repairs, 2. Requires some Repairs, 3. Average Condition 4. Above Average Condition 5. Excellent Condition**

**NOTES:**

<b><u>ELEMENT PERCENTAGES</u></b>	<b><u>% DAMAGED</u></b>
Foundation	_____
Superstructure	_____
Roof Covering	_____
Exterior Finish	_____
Interior Finish	_____
Doors & Windows	_____
Cabinets & Countertops	_____
Floor Finish	_____
Plumbing	_____
Electrical	_____
Appliances	_____
HVAC	_____
Skirting/Forms/Piers ( <b>MH only</b> )	_____

**Inspectors Name:** \_\_\_\_\_ **Date of Inspection:** \_\_\_\_\_  
MO/DD/YR

**Inspectors Phone:** \_\_\_\_\_

**ANY NOTES: (No one sees this form but officials)**

# Non-Residential Field Worksheet

## NON-RESIDENTIAL SDE DAMAGE INSPECTION WORKSHEET

**Building Address** \_\_\_\_\_

Owner First Name: \_\_\_\_\_ Owner Last Name: \_\_\_\_\_

Street Number: \_\_\_\_\_

City: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Mailing Address** **Check here if same as above:** \_\_\_\_\_

If different: Write mailing address here: \_\_\_\_\_  
Have Right of Entry form returned Yes No  
Initial here to give right to enter \_\_\_\_\_  
Date permission given to enter \_\_\_\_\_

Year of Construction \_\_\_\_\_ Number of Stories \_\_\_\_\_, 1 Story \_\_\_\_\_, 2 thru 4 \_\_\_\_\_, 5 or More \_\_\_\_\_

Structure Use \_\_\_\_\_

**Circle one:** Foundation: \_\_\_\_\_ Continuous Wall w/Slab (Standard) \_\_\_\_\_ Basement \_\_\_\_\_ Crawlspace

Piles \_\_\_\_\_ Slab-on-Grade \_\_\_\_\_ Piers and Posts

**Superstructure:** \_\_\_\_\_ Stud-Framed (Standard) \_\_\_\_\_ Common Brick \_\_\_\_\_ ICF \_\_\_\_\_ Masonry

**Roof Covering:** \_\_\_\_\_ Shingles – Asphalt (Standard) \_\_\_\_\_ Wood \_\_\_\_\_ Clay tile \_\_\_\_\_ Standing Seam (Metal)  
\_\_\_\_\_ Slate

**Interior:** \_\_\_\_\_

**HVAC System:** \_\_\_\_\_ Heating and/or Cooling \_\_\_\_\_ Where located? \_\_\_\_\_

**Electrical** \_\_\_\_\_

**Plumbing** \_\_\_\_\_

**Depth of Flood above ground:** \_\_\_\_\_ (estimated to nearest 0.5 foot)

**Depth of Flood Above First Floor** (estimated to nearest 0.5 foot) \_\_\_\_\_

No Physical Damage (Check here if none).

**Duration of Flood:** \_\_\_\_\_ Days: \_\_\_\_\_ Or Hours \_\_\_\_\_

Inspectors Name: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_  
(MM/DD/YYYY)

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

**Quality of Construction:** \_\_\_\_\_ Low \_\_\_\_\_ Budget \_\_\_\_\_ Average \_\_\_\_\_ Good \_\_\_\_\_ Excellent

**Depreciation Rating:** Check one:

\_\_\_\_\_ 1. Very Poor condition \_\_\_\_\_ 2. Requires Extensive Repairs \_\_\_\_\_ 3. Requires Some Repairs  
\_\_\_\_\_ 4. Average Condition \_\_\_\_\_ 5. Above Average Condition \_\_\_\_\_ Excellent condition \_\_\_\_\_ 7. Other .

Depreciation Explanation (Write here).

<b>ELEMENT PERCENTAGES</b>	<b>% DAMAGED</b>
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<b>Foundation</b>	_____
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<b>Superstructure</b>	_____
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<b>Roof Covering</b>	_____
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<b>Plumbing</b>	_____
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<b>Electrical</b>	_____
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<b>Interiors</b>	_____
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<b>HVAC</b>	_____
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**NOTES:**



## **SAMPLE STAND ALONE DAMAGE ASSESSMENT WORKSHEET (long hand version)**

**1. Address:** \_\_\_\_\_

**2. Owner:** \_\_\_\_\_

Telephone Number \_\_\_\_\_

**3. Occupant:** \_\_\_\_\_

Telephone Number \_\_\_\_\_

**4. Insurance Coverage (Optional):**

Company \_\_\_\_\_ Policy Number: \_\_\_\_\_

Building: \$ \_\_\_\_\_ Contents: \$ \_\_\_\_\_

**5. Special Flood Hazard Area:**

Community I.D. #: \_\_\_\_\_

FIRM Panel: \_\_\_\_\_ FIRM Date: \_\_\_\_\_

Flood zone: \_\_\_\_\_ Base Flood Elevation \_\_\_\_\_

Existing Lowest Floor Elevation: \_\_\_\_\_ (if available)

**6. Duration of Flooding:** Days \_\_\_\_\_ Hours \_\_\_\_\_

**7. High Water Mark:**

A) Exterior Walls \_\_\_\_\_ ft.

B) Interior Walls \_\_\_\_\_ ft.

**8. Type of Structure:**

A) Exterior:

- |                            |                           |
|----------------------------|---------------------------|
| 1) Plywood/Hardboard _____ | 5) Brick _____            |
| 2) Stucco _____            | 6) Concrete Block _____   |
| 3) Siding/Shingles _____   | 7) Other (describe) _____ |
| 4) Masonry Veneer _____    | _____                     |

B) Manufactured/Mobile Home:

- 1) Dimensions: a) single wide \_\_\_\_\_ size \_\_\_\_\_ x \_\_\_\_\_  
b) double wide \_\_\_\_\_ size \_\_\_\_\_ x \_\_\_\_\_
- 2) Skirting: yes \_\_\_\_\_ no \_\_\_\_\_

## 9. Description of Structure:

- A) 1 story \_\_\_\_\_ 2 story \_\_\_\_\_ Tri-level \_\_\_\_\_  
1 1/2 story \_\_\_\_\_ Bi-level \_\_\_\_\_ 3 or more \_\_\_\_\_
- B) Garage: attached \_\_\_\_\_ detached \_\_\_\_\_  
Carport: attached \_\_\_\_\_ detached \_\_\_\_\_
- C) Roofing:  
Metal/corrugated or ribbed \_\_\_\_\_ Composition shingles \_\_\_\_\_  
Other: Describe \_\_\_\_\_
- D) Foundation:  
Slab-on-grade \_\_\_\_\_  
Crawlspace \_\_\_\_\_  
Basement \_\_\_\_\_ (Finished \_\_ Unfinished \_\_)  
Poured walls \_\_\_\_\_  
Block walls \_\_\_\_\_  
Post-piers-piles \_\_\_\_\_
- E) Heating and Cooling:  
Forced air \_\_\_\_\_  
Boiler \_\_\_\_\_  
Wall furnace or baseboard \_\_\_\_\_  
Heat Pump \_\_\_\_\_  
Fireplace/wood burning stove \_\_\_\_\_  
Other \_\_\_\_\_
- F) Plumbing: Number of bathrooms: \_\_\_\_\_
- G) Built-In Appliances:  
List: \_\_\_\_\_

## 10. Description of Damage:

- A) Plumbing:  
1) Is it exposed? \_\_\_\_\_  
2) Does it need repair? \_\_\_\_\_
- B) HVAC/Electrical  
1) Water depth \_\_\_\_\_ ft.  
2) Damaged \_\_\_\_\_ (Repairable \_\_\_\_\_ Replaced \_\_\_\_\_)

**Use corresponding numbers given below to answer C-F below:**

- |                       |                          |
|-----------------------|--------------------------|
| 1. Settlement/cracked | 2. Partially missing     |
| 3. Sagging            | 4. Dislodged/destroyed   |
| 5. Submerged          | 6. Include all the above |
| 7. No damage          | 8. Other: describe _____ |

C) Foundation \_\_\_\_\_

D) Exterior Walls \_\_\_\_\_

E) Interior Walls \_\_\_\_\_

F) Roof \_\_\_\_\_

**11. Overall condition of structure:**

- |                            |                                   |
|----------------------------|-----------------------------------|
| A) Minor damage _____      | B) Major Damage _____             |
| C) Totally destroyed _____ | D) Structure off foundation _____ |

**12. Determination of Substantial Damage**

Percent Damage =  $\frac{\text{Cost of Repair}}{\text{Market Value}}$  = \_\_\_\_\_

**In the event that the percent damage is equal to or greater than 50%, the building is substantially damaged.**

\_\_\_\_\_ This building is substantially damaged and therefore must be elevated or floodproofed so that the lowest floor is protected at or above the elevation of the base flood.

\_\_\_\_\_ This building is not substantially damaged. This building can be repaired without having to be mitigated.

\_\_\_\_\_ This is a properly elevated structure and may be reconstructed at its existing elevation.

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

# **SAMPLE LETTERS, FORMS AND NEWS RELEASES**

**Pages 20-25**

# ⇒ NOTICE ⇐

**Because this building is located in a floodplain and was damaged by flooding, a damage assessment must be conducted by the (city or county).**

**Before occupying this building or doing any repair work you must call the (city or county) community's Floodplain Administrator at (\_\_\_\_) \_\_\_\_\_ to schedule an inspection.**

**Failure to obtain reconstruction approval may result in a penalty.**

## **SAMPLE PRESS RELEASE**

### **RESIDENTS IN (COMMUNITY) WITH FLOOD DAMAGE REMINDED OF PERMIT REQUIREMENTS**

As property owners in (community) contemplate clean up and repairs following recent flooding, the (community permit office) is reminding residents to obtaining local permits before repairing or rebuilding flood-damaged structures.

The permits are required as part of local government participation in the National Flood Insurance Program, providing eligibility for flood insurance, flood disaster assistance, state and federal grants and loans, and buyout funds for flood-prone property.

Local floodplain management ordinances require that permits be obtained for any construction or development activity in a floodplain area, including the repair or reconstruction of structures damaged by flooding.

Special conditions apply to substantially damaged buildings - those in which the total cost of repairs is 50 percent or more of the structure's pre-flood market value. If a building is found to be substantially damaged, regulations require that repairs not begin until compliance with the local floodplain ordinance is demonstrated. In some cases, that may require repairs that include elevating or flood-proofing the structure to reduce the potential for future flood damage.

The cost to repair must be calculated for full repair to "pre-damaged" condition, even if the owner elects to do less. The total cost to repair includes structural and finish materials as well as labor. If labor and materials have been donated they must still be assigned a value. If local building codes require the structure to be repaired according to certain standards, these additional costs must be included in the full repair cost for the structure.

State and federal assistance may be available to property owners to reduce the chances of future flood damage. Mitigation assistance may cover costs of relocation, or for elevating or purchasing flood-damaged structures. Flood insurance may also provide up to \$30,000 to protect a structure from future flood damage.

Property owners and residents with flood-damaged buildings should contact (local building and zoning administrator) for more information on repair and reconstruction permits.

## **SAMPLE SUBSTANTIAL DAMAGE DETERMINATION LETTER**

### Community's Letterhead

Date

John & Jane Q. Public  
1234 Flooded-By-The-River Road  
Floodville, Mo 61000

RE: Substantial Damage Evaluation - 1234 Flooded-By-The-River Road

Dear Mr. and Mrs. Public,

Subsequent to the recent flooding event, a damage assessment has been completed on the property referenced above. This is a part of the **City of Floodville's** floodplain management responsibilities in order to maintain the availability of flood insurance and disaster assistance to residents. The following information relates to the address referenced above:

Community Name:	Floodville, Missouri
Flood Damage Timeframe:	June, 2020
Parcel Zone Information:	Zone AE
Total Damages:	\$65,000
Fair Market Value:	\$100,000
Percent Damaged:	65.0%

The determination is that this structure is declared **Substantially Damaged** and must be brought into compliance with the **City of Floodville's** Floodplain Ordinance prior to repair and reoccupation. For this structure to be in compliance with the ordinance, the structure must be elevated, moved outside the floodplain or demolished.

Building inspections, **Floodplain Development Permits**, and an **Elevation Certificate** will be required prior to occupancy. This structure may **NOT** be occupied until these corrections are made. Please contact this office at your earliest convenience to make an appointment to discuss your upcoming project.

If you have any additional questions, feel free to give me a call: xxx-xxx-xxxx.

Sincerely,

Floodplain Administrator  
City of Floodville  
Address:  
Phone Number



## **SAMPLE NOT SUBSTANTIALLY DAMAGED DETERMINATION LETTER**

### Community's Letterhead

Date

John & Jane Q. Public  
1234 Flooded-By-The-River Road  
Floodville, Mo 61000

RE: Substantial Damage Evaluation - 1234 Flooded-By-The-River Road

Dear Mr. and Mrs. Public,

Subsequent to the recent flooding event, a damage assessment has been completed on the property referenced above. This is a part of the City of Floodville's floodplain management responsibilities in order to maintain the availability of flood insurance and disaster assistance to our residents. The following information relates to the address referenced above.

Community Name:	Floodville, Missouri
Flood Damage Timeframe:	June, 2020
Parcel Zone Information:	Zone AE
Total Damages:	\$35,000
Fair Market Value:	\$100,000
Percent Damaged:	35.0%

The determination is that this structure is declared: **Not Substantially Damaged**

An approved Floodplain Development Permit is required and it is attached. Please sign and date the permit and return it to my office. Be advised that we will make another determination if you elect to perform work other than what is necessary to repair the damage, such as additional renovations or upgrades or building an addition. **Construction activities that are undertaken without a proper permit are violations and may result in citations, fines or other legal action.**

If you have any additional questions, feel free to give me a call: xxx-xxx-xxxx.

Sincerely,

Floodplain Administrator  
City of Floodville  
Address:

**SAMPLE RIGHT OF ENTRY FORM**

**PROPERTY OWNER'S RIGHT OF ENTRY CERTIFICATION  
AND RELEASE**

A floodplain permit is required for all construction activity in the Special Flood Hazard Area (SFHA) or that area inundated by the 1% annual chance of a flood, as designated by the National Flood Insurance Program (NFIP). These SFHAs are designated as A, AE, A1-A30, AH, or AO Zones on the Flood Insurance Rate Maps (FIRMs). This includes construction for new or improved residential and non-residential structures, filling, and excavation.

I, the undersigned, being the owner of the land and all structures located at **(address of the structure)**, Missouri, do hereby grant the community of **(community's name)** permission to inspect the property to determine the amount of damage and to comply with the National Flood Insurance (NFIP) Regulations for Substantial Damage Determinations according to Title 44 CFR, Section 60.3.

I, the undersigned, do hereby grant the community of **(community's name)**, its agents, servants, employees and assigns, for a period of 60 days or the completion of the substantial damage assessment, from the date of this document, permission to enter upon the above identified land to accomplish substantial damage/improvement determinations.

In consideration of the substantial damage assessment conferred on me by the community of **(community's name)**, in said substantial damage/improvement determinations, I, the undersigned, do hereby release and forever discharge the community of **(community's name)** its agents, servants, employees and assigns from any and all claims, demands, or actions for damages for any and all personal injuries, or loss or damage to property sustained in or growing out of said inspections, and from complications arising therefrom.

I also hereby agree to comply with the Community's Ordinance/Resolution No. \_\_\_\_\_.

It is understood that the above mentioned substantial damage assessment and the terms of the Release are fully understood and voluntarily accepted.

I HAVE READ THE FOREGOING RELEASE AND FULLY UNDERSTAND IT.

IN WITNESS WHEREOF, I have hereunder set my hand this \_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Witness

## **SAMPLE HANDOUT FOR RESIDENTS**

### **Information Regarding Cleanup of Damaged Structures within the Floodplain**

Repairs to damaged buildings located within the (**community's name**) floodplain require a Substantial Damage Assessment (SDE) and a permit from the (**community's name**) building department and/or the (**community's name**) Floodplain Administrator.

1. You **MUST** have a SDE determination and obtain a Floodplain Development Permit from (**community name**) before you repair, alter, or replace any of the following items:
  - a. Roof
  - b. Walls
  - c. Siding
  - d. Plaster
  - e. Cabinets
  - f. Flooring
  - g. Electrical systems
  - h. Plumbing
  - i. Heating
  - j. Air conditioning units
  - k. Foundation
2. You **MUST** obtain a Substantial Damage Assessment before you repair the above items. The permit office must conduct a damage assessment of the building. This inspection will determine if a structure is more than 50% damaged (substantially damaged). If a structure is found to be substantially damaged, the structure may not be repaired until compliance with the local floodplain ordinance is demonstrated. It is imperative that the community's Floodplain Administrator is contacted prior to taking any actions to repair damage related to the flood.
3. You may proceed with cleanup activities and temporary emergency repairs to prevent further deterioration, such as preventing the spread of mold and/or mildew, without a permit. These include:
  - a. Removing and disposing of damaged contents, carpeting, wallboard, and insulation.
  - b. Hosing and scrubbing, or cleaning floors, walls, and ductwork.
  - c. Covering holes in roofs or walls and covering windows to prevent the weather from inflicting further damage.
  - d. Removing sagging ceilings, shoring up broken foundations, and other actions to make the building safe to enter.

Prior to proceeding with cleanup activities that are allowed without a permit, thoroughly document the condition of the building by photographing the inside and outside of all areas that are being affected by the cleanup/emergency repairs.

**NOTE: BUILDING REPAIRS AND STRUCTURAL IMPROVEMENTS ARE NOT ALLOWED WITHOUT A SDE DETERMINATION AND A PERMIT FROM THE LOCAL FLOODPLAIN ADMINISTRATOR.**

**Add Floodplain Administrator's name**  
**Floodplain Administrator's Phone number**

# **HMA GRANT INFORMATION**

**Pages 27 - 28**

**There are three potential grants under the Hazard Mitigation Assistance (HMA) program. Here is some basic information:**

- **Hazard Mitigation Grant Program (HMGP)** provides funds after a disaster is declared in Missouri. The federal share is 75% and a local match share of 25% is required. The project must meet a 1.0 Benefit Cost Ratio using FEMA's Benefit Cost Analysis software program to be considered cost effective.
- **BRIC, Building Resilient Infrastructure & Communities, (Formerly PDM, Pre-Disaster Mitigation)**  
The application period opens each year. This is a new program and the notice of funding opportunity rolled out August 2020. This grant provides a 75% federal share and requires a 25% local match share. If the community fits the definition of "small and impoverished", the federal share is 90% and only requires a 10% local match share. (See FEMA for definition for *small and impoverished*.) To be considered cost effective, the project must also meet a 1.0 Benefit Cost Ratio using FEMA's Benefit Cost Analysis software program.
- **Flood Mitigation Assistance (FMA)** is a nationally competitive grant that is funded by an annual appropriation by Congress. This is only for flood related projects with NFIP (National Flood Insurance Program) insured properties or the affected surrounding properties having NFIP Insurance. The application period opens each year, this information can be found on grants.gov. This grant provides 100% Federal if the properties are severe repetitive loss properties with repetitive loss strategy. In addition, there is a 90% Federal /10% local match share if the properties are just repetitive loss.  
Notice of Interest (NOI) forms you can submit if you are interested in pursuing one of these grants. NOIs are entered into SEMA's active database and the project is stored there for a two year period. When funds become available, we look to this database for potential projects. When the PDM and FMA application period is open, we also look to this database for potential projects.

NOIs can be found on the Mitigation Management website.  
[https://sema.dps.mo.gov/programs/mitigation\\_management.php](https://sema.dps.mo.gov/programs/mitigation_management.php)

Here is a link to SEMA's mitigation web page: [http://sema.dps.mo.gov/programs/mitigation\\_management.php](http://sema.dps.mo.gov/programs/mitigation_management.php)  
FEMA's HMA Guidance can be found here as well as a lot of other good information and resources.

#### Eligible Sub-applicants

An application must be submitted by an "eligible" city, county, special district, public school, university, or community college to be considered for funding. In some cases, counties or communities may apply for a mitigation grant on behalf of a private school (501 (c) 3 eligible), university, or two-year college. Due to various requirements, applications from individuals cannot be accepted; however, an eligible sub-applicant may apply for funding to mitigate private structures in cases of flood buyouts.

All interested sub-applicants must apply to the Applicant (Missouri State Emergency Management Agency). The table below identifies, in general, eligible sub-applicants. For specific details regarding eligible subapplicants, refer to 44 CFR Part 206.434(a) for HMGP and 44 CFR Part 79.6(a) for FMA. For HMGP and PDM, see 44 CFR Part 206.2(16) for a definition of local governments.

<https://sema.dps.mo.gov/programs/documents/table-1-eligible-subapplicants.pdf>

To subscribe to FEMA's notification system for grant funding opportunities, including Flood Mitigation Assistance (FMA) and Building Resilient Infrastructure and Communities (BRIC) programs:

(<https://public.govdelivery.com/accounts/USDHSFEMA/subscriber/new>)

Interested jurisdictions should submit a Notice of Interest (NOI) to SEMA to be considered for any of these grant programs. NOIs can be submitted at any time and are kept on file for two years. Depending on the specific program funding opportunity and when FEMA releases the Notification of Funding Opportunity (NOFO), NOIs are due to SEMA 30 business days after the NOFO announcement. This allows enough time for staff to conduct a thorough review, including an analysis of the cost benefit, Flood Insurance Rate Maps (FIRMs), budget, type of eligible project, and other necessary requirements. This must occur before the jurisdiction is selected for application development, which is also dependent on budget and/or declared areas. The jurisdiction will be notified if their NOI has been selected, and must then submit their application utilizing FEMA's new grants management system (FEMA GO) before the SEMA due date provided at that time. SEMA and the jurisdiction will continue to coordinate during the application development process in order to submit all necessary documentation before FEMA's final deadline.

### **Benefit Cost Analysis (BCA) Requirements (Revised September 2020, Version 6.0)**

FEMA requires that mitigation project applications be accompanied by a Benefit Cost Analysis (developed on FEMA software) that demonstrates a future savings of at least one dollar for every dollar expended on any mitigation project.

#### **•Benefit Cost Analysis Reengineered (BCAR) Software**

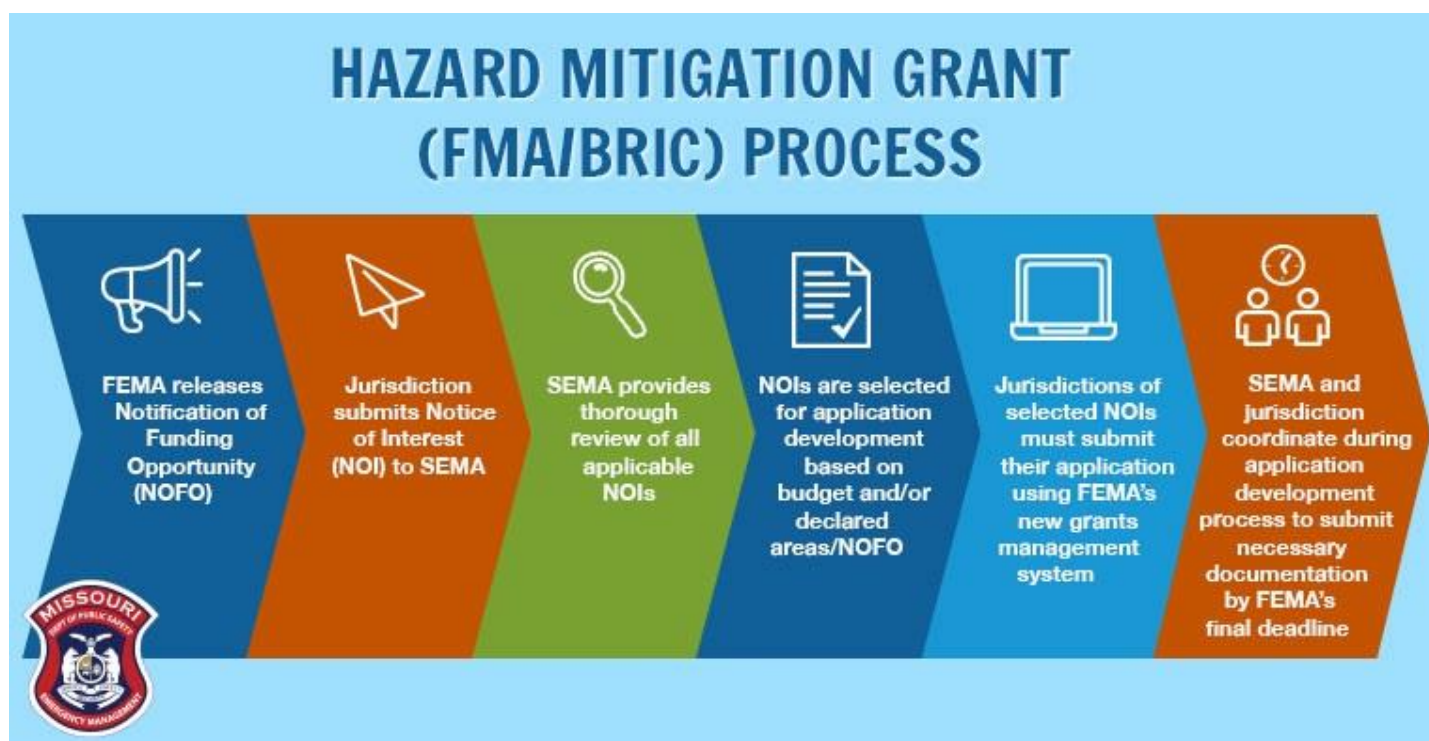
#### **•Supplement to the Benefit-Cost Analysis Reference Guide** (June 2011)

**•BCAR & Application Classroom Training:** SEMA may offer subapplicant training during open application periods.

Note: Use of FEMA's Benefit Cost Analysis Revised (BCAR) software is mandatory for all non-disaster mitigation project grant applications and any HMGP projects funded from disasters declared after June 1, 2009. The software can be downloaded on **FEMA's site** <https://www.fema.gov/grants/guidance-tools/benefit-cost-analysis>.

SEMA Mitigation Contacts:

- Heidi Carver, State Hazard Mitigation Officer (573) 526-9116
- Jennifer Storey, Deputy State Mitigation Officer (573) 526-9116



# **GENERAL NFIP INFORMATION**

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# **Protect Your Home From Flood Damages**

Under the National Flood Insurance Program (NFIP), the Increased Cost of Compliance (ICC) program may provide additional financial assistance to either elevate or remove flood damaged structures from the floodplain. The ICC applies to flooded structures that are either substantially damaged or located in a community with cumulative substantial damage provisions in its ordinance.

The two most common types of ICC mitigation used are:

## **Relocation:**

Relocating structures to higher ground or purchasing flood prone property is the safest way to protect against flooding and reduce the liability and cost to the community. Relocation can be expensive, but in the long run it is not as costly as repetitive flood damages and high flood insurance premiums.

## **Elevation:**

There are three methods used to elevate a structure:

Construction on crawlspace



Elevation on compacted fill



Elevation on post, piers, etc.



The elevation method is dependent on the structure's condition, flood hazard, local floodplain regulations, and owner's financial condition. When elevating, it is essential for all utilities (air conditioner, water heater, furnace, etc.) to be elevated to or above the Base Flood Elevation.

Owners who have standard flood insurance coverage have paid for and are eligible to receive ICC benefits if the local official determines that a structure located in a Special Flood Hazard Area has been substantially damaged by a flood or cumulatively damaged by flooding beyond 50% of the value of the structure when the damage occurred.

ICC does not normally cover buildings in B, C, X, or D Zones. However, if the community can document that it is regulating an area outside of the Special Flood Hazard Area (advisory or preliminary BFEs provided by FEMA), ICC will be available.

# **Home Moving and Elevation Contractors**

The International Association of Structural Movers, founded in 1982, is a trade association representing structural movers in 12 countries. The Association's website, contains a listing of professional movers that are members of the association. You are encouraged to contact these companies first when you have a need for elevation, relocation or other type services.

**[www.iasm.org](http://www.iasm.org)**